

Law Offices
DAVOR Z. PEVEC
HONOLULU, HAWAII

HONOLULU OFFICE
745 PORT STREET, SUITE 2000
HONOLULU, HAWAII 96813
TELEPHONE: (808) 599-5655
FACSIMILE (808) 599-1609
e-mail: dzpvec@aol.com

MARSHALL ISLANDS OFFICE
GIBSON'S CENTER
P.O. BOX 1777
MAJURO, MARSHALL ISLANDS 96960
TELEPHONE (692) 625-3120
FACSIMILE (692) 625-3120

FACSIMILE TRANSMITTAL

CONFIDENTIALITY: The information contained in this FAX message is intended only for the personal and confidential use of the designated recipients named below. This message may be an attorney-client communication and, as such, is privileged and confidential. If the reader of this message is not the intended recipient or an agent responsible for delivering it to the intended recipient, you are hereby notified that you have received this document in error, and that any review, dissemination, distribution or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and return the original message to us by mail. Thank you.

DATE: December 10, 1999
TO: Mr. Frank Hawkins
U.S. Department of Energy
Office of International Health Programs
FAX No.: 301-903-1413
FROM: Davor Z. Pevec, Esq.
Total no. of pages being transmitted (including cover page): 10

REMARKS:

Dear Frank:

Please find attached a revised MOU for Enewetak which addresses the issues we discussed at the DOE program annual review in Honolulu, October 18-19, 1999.

The Enewetak leadership are anxious that this MOU be completed as soon as possible so that the necessary monitoring and environmental work can be implemented to protect the health of the Enewetak People.

A copy of the MOU is also being sent to you via email.

Please confirm receipt of this fax.

Sincerely,

Davor Z. Pevec

**MEMORANDUM OF UNDERSTANDING
AMONG
THE UNITED STATES DEPARTMENT OF ENERGY
AND
THE GOVERNMENT OF THE REPUBLIC OF THE MARSHALL ISLANDS
AND
THE ENEWETAK/UJELANG LOCAL GOVERNMENT COUNCIL**

This Memorandum of Understanding ("MOU") is entered into among the United States Department of Energy ("DOE"), the government of the Republic of the Marshall Islands ("RMI Government"), and the Enewetak/Ujelang Local Government Council ("Enewetak Council") (collectively the "Parties").

**Article 1
Purpose**

The purpose of this MOU is to establish a framework for cooperation among the Parties concerning the DOE's environmental and human monitoring, and remediation and resettlement activities at Enewetak Atoll.

**Article 2
Human and Environmental Surveillance**

2.1 Whole-Body Counting

To minimize internal exposures and health risks from internal exposure to Cs-137 and for demonstrating compliance with the adopted dose rate limit of 15 mrem per year above background from all exposure pathways, DOE and Enewetak Council will undertake the following activities:

DOE will:

(1) Provide and maintain a whole body counter (WBC) and associated items (the "WBC system") to be located on Enewetak Island. The WBC shall have a sensitivity for detecting Cs-137 body burden with a lower limit of detection (LLD) not to exceed 10 nanocuries (nCi). The system shall be equivalent to that currently provided to RMI.GOV and consist of the following: (a) a large NaI detector, (b) associated electronics inclusive of power supply, multichannel analyzer, computer, printer, etc., (c) chair (shadow-shielded), (d) computer software programs (e.g., ABACOS), (e) bottle mannequin absorber calibration phantom with NIST traceable calibration source, and (f) manufacturer specification and operating manuals.

(2) Provide technical support in the initial setup of the WBC and calibrate the WBC using appropriate phantoms and NIST traceable sources.

(3) Hire and train two (2) Enewetak residents for the day-to-day operation of the WBC. Operator technician training should include classroom instruction on basic principles of radioactivity, radiation detection and measurements, and practical factors training pertaining to WBC operation, daily WBC quality control (QC) checks, data collection, and record management.

(4) Assist in the development of a questionnaire to be completed by persons subject to whole body counting. Questionnaire should be made available in both English and Marshallese.

(5) On an as-needed-basis, provide technical support or services as "trouble-shooters" to WBC operator technician(s).

(6) Analyze and interpret raw WBC data (i.e., body burden) and convert to annual dose and committed effective dose equivalent (CEDE).

(7) Report promptly the results of the whole body counting, in writing and in easy-to-understand terms, to the individuals concerned and, subject to the protection of those individuals' privacy, the to RMI Government and the Enewetak Council. Upon request, summary results of the WBC should be translated into Marshallese and made available to the respective individual(s).

(8) Provide guidance for defining the scope of human surveillance. Important parameters include the population of individuals to be routinely surveyed, the frequency of routine WBC measurements, and circumstances/conditions that warrant non-routine WBC measurements. For example, all individuals likely to participate in the resettlement program or who are workers engaged in radiological remediation or in work activities with significant potential for internal exposure should be given baseline, routine, and exit whole body counting; independent of resettlement or worker status, all individuals who are permanent residents of Enewetak should as a minimum receive a baseline WBC. In addition, discretionary or non-routine WBC should be administered under conditions with significant potential for internal exposure or where there is circumstantial evidence of significant internal exposure.

(9) Establish an auditable record system and WBC database that track individuals over time. The record system/database should include all raw WBC data, assignment of internal doses, and associated assumptions/methodologies employed. Records must be made available upon request to all individuals monitored (or to his/her guardian) but should be confidential and comply with standards defined under the U.S. Privacy Act. WBC records must contain a unique identifier (e.g., digitized photo ID) that will also serve as linkage to other records/databases.

(10) Participate in periodic community or other hearings for the purpose of keeping the RMI Government, the Enewetak Council, and Enewetak people informed of surveillance data and their implications.

(11) Submit, on an annual basis, a written report that summarizes and trends the results of WBC (and urinalysis) data. Annual report should include a summary discussion that is translated into Marshallese and contain information that not only defines average value of body burdens, doses, and risks but also provides data that define the distribution by age and sex as well as observed high-end values.

(12) Pay the Enewetak Council the sum of \$500.00 per month for the space required to house the WBC system.

Enewetak Council will:

(1) Provide and maintain a secure facility on Enewetak that will accommodate the WBC system.

(2) Conduct employment screening that will identify two (2) individuals with the necessary qualifications to undergo WBC operator training at a DOE designated facility.

(3) Pay for the utilities necessary to maintain and operate the WBC facility and provide other logistical support and/or operations and facility maintenance as the parties may agree to in writing.

(4) Assist persons given whole body counts in filling out a questionnaire pertaining to diet and/or travel.

(5) Be responsible for securing licenses or approval from the RMI Government for any material/equipment required for DOE assisted radiological monitoring and surveillance, including check-sources and calibration-sources that contain low-level radioactive materials.

(6) Assist DOE in maintaining control and custody over all low-level radioactive check/calibration sources used at Enewetak Atoll for human monitoring, environmental surveillance, and island remediation.

(7) Provide DOE's Field Operations Manager with reasonable advance written request(s) for additional assistance/support in future instances of unexpected/unanticipated environmental contamination of and human exposure to radiological hazards and non-radiological hazards.

2.2 Environmental Surveillance and Other Human Monitoring

DOE shall institute a limited environmental surveillance program for Runit Island and the Cactus Crater Dome facility as part of a long-term institutional control measure. At a minimum, this would include yearly on-site inspection of the physical barriers (i.e., sea wall, dome cap, etc.) that contain wastes and monitoring of ground water in proximity of the Dome.

In light of recently declassified DOE documents that acknowledge past environmental releases of uranium-238 as well as several other non-radioactive elements (e.g., thallium, arsenic, beryllium), DOE shall conduct a limited study that assesses the presence of these contaminants in soils and representative food products (terrestrial and aquatic).

Lastly, a monitoring program shall be established for workers engaged in construction, agricultural, remediation, and other work activities as well as for long-term residents of Enewetak who may have the potential for incurring significant lung/body burdens of Pu-239/240 and Am-241 through inhalation and/or ingestion of contaminated soil, food, and other media. DOE and Enewetak Council will undertake the following activities:

DOE will:

(1) Conduct an objective quantitative re-evaluation, based on present-day survey data, regarding the potential for significant future Pu-239/240 and Am-241 body burden/organ burden and associated radiation doses and health risks. The re-evaluation should critically review model parameters that were previously used to estimate doses from resuspension of soil and food ingestion as reported by Robison (1980¹ and 1998²).

(2) On the basis of this re-evaluation, first determine the need for human bioassay monitoring for actinides and secondly select an appropriate analytical method.

(3) Provide baseline urinalysis to workers/residents should monitoring be considered necessary and should analysis of urine be the preferred method for human monitoring.

(4) Institute an air monitoring program if the re-evaluation shows a need for human monitoring and neither *in vitro* bioassay (i.e., urinalysis) nor *in vivo* bioassay (i.e., lung counting) provide sufficiently sensitive/useful in assessing uptakes.

¹ Robison, W.L., W.A. Phillips, M.F. Mount, B.R. Clegg and C.L. Conrado, 1980, *Reassessment of the Potential Radiological Doses for Residents Resettling Enewetak Atoll*, UCRL-53066, Lawrence Livermore National Laboratory, Livermore, CA.

² Robison, W.L., T.F. Hamilton, C.L. Conrado, A.C. Stoker, and M.L. Stuart, 1998, *Radiological Conditions at Enewetak Atoll*, Draft Report, Lawrence Livermore National Laboratory, Livermore, CA.

(5) Analyze bioassay/air monitoring data and provide estimates of associated organ doses and CEDEs for actinides.

(6) Maintain permanent records of any internal dose assessments in behalf of actinides. Records should employ the same individual ID code (e.g., digitized photo ID) in order to link WBC data with estimates of internal dose from actinides.

(7) Establish guidance and instructions for urine sample collection method and sample preservation.

Enewetak Council will:

(1) Assist DOE in actinide monitoring program in matters pertaining to sample collection and sample preservation.

(2) Provide a secured facility for temporary sample storage prior to off-site shipping and analysis.

(3) Assist DOE in matters of documentation pertaining to sample ID labeling, chain-of-custody, and shipping manifests.

(4) Assist DOE in disseminating the results of bioassay data to participants.

Article 3

Additional Radiological Survey Measurements and Environmental Sampling

3.1 DOE (or through its contractor) will:

(1) Complete the grid sampling characterization of Aej and Lujor islands, and issue a report on environmental monitoring activities at Enewetak, Medren, Japtan, Anij, Aej, Lujor, Allenbel, Lojwa, Bijire, Aomon, and Runit islands.

(2) Complete the analysis of marine samples (northern lagoon) and issue a final report.

(3) Provide additional survey measurements and analyses of environmental samples in instances of unanticipated events/observations associated with future remediation and revegetation activities. (For example, recent excavation/trenching on Enewetak Island for agricultural purposes has revealed unexpected sub-surface soil horizons high in organic matter. These layers appear to have been backfilled and, therefore, have the potential for contamination levels that may be well above those suggested by previous survey measurements.)

(4) Provide the Enewetak Council with at least two (2) micro-R field survey instruments and several (4-6) Geiger-Mueller counters equipped with both a conventional open/closed

window "hot-dog" probe and a thin window "pan-cake" probe. (These instruments will be employed in the field to screen suspected areas of soil contamination and for "frisking" of personnel for skin and clothing contamination.)

3.2 Enewetak Council will:

(1) Employ the above-referenced field instruments to screen uncovered soils or previously unmonitored suspect media and monitor field workers for skin/clothing contamination in such instances.

(2) Submit in writing a request for more quantitative analyses of environmental media in instances where field screening measurements are suggestive of contamination in excess of anticipated levels.

Article 4

Remediation of Enjebi and Other Islands of Enewetak Atoll

To be completed later.

Article 5

Resettlement of Enjebi and Other Islands of Enewetak Atoll

To be completed later.

Article 6

RMI Government Undertakings

The RMI Government will:

(1) Facilitate the grant of any licenses or other approvals for any material and equipment required for any DOE-assisted radiological monitoring, including equipment that emits low levels of ionizing radiation.

(2) Provide DOE with reasonable advance written request(s) to participate in community or other meetings to keep the RMI Government, Enewetak Council, and the Enewetak people apprised of DOE's activities.

(3) Provide such other assistance to DOE as the Parties may agree to in writing.

Article 7
General Conditions

7.1 Any notice or other communication in connection with this MOU will be in writing. All notices, requests, and other communications under this MOU will be given to or made upon the respective Parties as follows:

If to the RMI Government:

Minister of Foreign Affairs and Trade
P.O. Box 1349
Majuro, Republic of the Marshall Islands 96960
Facsimile: 011-692-625-4979

If to the Enewetak Council:

Enewetak/Ujelang Local Government Council
Mayor Neptali Peter
Office of the Mayor
P.O. Box 1199
Majuro, Republic of the Marshall Islands 96960
Facsimile: 011-692-625-3506; and

Senator Ismael John
Nitijela
Majuro, Republic of the Marshall Islands 96960
Facsimile: 011-692-625-3506

with copy to:

Davor Z. Pevec, Esq.
Hawaii Tower, Suite 2000
745 Fort Street
Honolulu, Hawaii 96813
Facsimile: 808-599-1609

If to DOE:

Mr. Frank Hawkins
U.S. Department of Energy
Office of International Health Programs
Attn: EH-63/GTN/270 Corporate Center
19901 Germantown Road
Germantown, MD 20874-1290
Telephone: 301-903-3148
Facsimile: 301-903-1413

If to DOE's Field Operations Manager:

Mr. William D. Jackson
U.S. Department of Energy
Pacific Area Support Office
P.O. Box 29939
Honolulu, HI 96820-2339
Telephone: 808-422-9211
Facsimile: 808-422-9217

7.2 Governing law: The laws and regulations of the United States will govern this MOU, as set forth in the Compact of Free Association between the RMI Government and the United States of America and in the Federal Programs and Services Agreement concluded pursuant thereto. All questions relating to the MOU arising during its term will be settled by the Parties by mutual agreement.

7.3 It is understood that the ability of DOE to carry out its undertakings under the MOU and the DOE Support Plan is subject to the availability of appropriated funds.

Article 8

Commencement, Amendment, Renewal and Termination

8.1 Cooperation under this MOU will commence on the date that the last signatory signs the MOU, and will continue for three (3) years.

8.2 By written agreement of the Parties, and with the concurrence of the U.S. Department of the Interior, this MOU may be amended at any time, and may be renewed for additional periods.

8.3 This MOU may be terminated by written agreement of the Parties, or may be terminated by any Party upon ninety (90) days written notice to the other Parties.

ACCEPTANCE:

Date: _____

Phillip Muller
Minister of Foreign Affairs and Trade
Republic of the Marshall Islands

Date: _____

Neptali Peter
Mayor
Enewetak/Ujelang Local Government

Date: _____

Paul J. Seligman, M.D., M.P.H.
Deputy Assistant Secretary
for Health Studies
U.S. Department of Energy

ACKNOWLEDGED BY:

Date: _____

Danny Aranza
Director
Office of Insular Affairs
U.S. Department of the Interior